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as compared with 12 per cent. in the preceding five-year period. In this State and in Rhode Island it is impossible to separate the urban and rural elements, since both may be present in each town, which is the smallest unit by which the population is given.

Rhode Island made the notable increase of 14 per cent., which may be compared with the increase in the preceding five years (1895 to 1900) of 11 per cent.

Taken collectively, the rural population of nine States, omitting Massachusetts and Rhode Island, shows an increase of only 3 per cent. The urban population, classified according to the size of the cities and towns, shows the following rates of increase:

1,000 to 10,000	13 per cent.
10,000 to 100,000	14 per cent.
100,000 and over	15 per cent.

The average rate of increase in the urban population is 14 per cent.

PRECISE LEVELS IN THE UNITED STATES.

In the past five years and since the adoption of an improved binocular precise level by the U. S. Coast and Geodetic Survey, and because of the vast amount of primary levelling now being run in accordance with the law by the U. S. Geological Survey, rapid strides have been made in the extension of precise levels over the United States. A few years ago we had in the United States lines of precise level by the Army Engineers up the Mississippi River to St. Louis, up the Hudson River, through the Great Lakes and down the Mississippi to St. Louis, and the transcontinental line of the Coast Survey from Sandy Hook to St. Louis.

Since the introduction of the new Coast Survey prismatic level, which has recently been adopted in the Geological Survey also, because of the rapidity and cheapness with which precise levelling of a high order can be run by this instrument, greater progress has been made in determining exact altitudes within the interior of the continent in the past few years than in all the preceding years.

The Coast Survey had, a year ago, extended its transcontinental line from Denver to Grainger, Wyo. It had run a line of precise levels along the 98th meridian from its transcontinental line southward to Fort Worth, where it connected with lines of the Army Engineers down the Red River to New Orleans.

Precise levels of the Coast Survey had been run from the neighbourhood of Mobile Bay *via* Chattanooga and Cincinnati to Toledo, where connection was made with the Army Engineers' levels in the Great Lakes. The Engineer Corps of the Army had run their routes of levels from the Mississippi up the Arkansas River to Fort Smith, and thence to Kansas City, connecting there with their levels up the Missouri River to Sioux City.

The Geological Survey had run precise levels from Newbern, N. C., *via* Knoxville and Atlanta to Brunswick, Ga., connecting at Chattanooga with the Coast Survey levels; also, through various portions of New York, Ohio, and especially along the Pacific Coast from San Francisco through the San Joaquin Valley to Los Angeles and through the Sacramento Valley to Portland; also from Seattle, eastward into Montana.

Last year the Coast Survey completed the extension of its precise levels from Grainger to Seattle. The result of this vast transcontinental chain from Sandy Hook, checked by numerous lines at St. Louis and farther out at Kansas City, Sioux City, and Denver, and reaching in a single line from Cheyenne to Seattle, gives a check between the two oceans of seven inches.

During the field season just closed the Coast Survey has extended its precise levels along the 98th meridian northward from Sioux City to the neighbourhood of Fargo, N. D., and is continuing the same down the Red River toward the Canadian boundary. The connection eastward from the neighbourhood of Fargo to the Army Engineers' levels at Duluth, on Lake Superior, is soon to be made.

The Geological Survey ran lines of precise levels during the past season crossing Iowa from near Council Bluffs to Des Moines; also, across Illinois from near Pekin, where connection was made with the Army Engineers' levels, to Champaign; in Ohio, from Chillicothe northward to Columbus; in Virginia and North Carolina, from near Raleigh northward to the Roanoke River; also from Greensboro northward to Roanoke, Va.

From the above it will be seen that elevations of precision, the heights of which will doubtless remain for many years, have been procured throughout nearly the whole eastern portion of the United States. In addition, primary levels of less accuracy, but still of comparatively high value, have been run throughout many portions of every State in connection with the topographic mapping of the U. S. Geological Survey. In connection with these primary levels, permanent bench-marks of metal have been set at distances averaging three miles apart wherever the levels have been run.

In the western part of the United States a large amount of precise levelling has also been done. In addition to the transcontinental line of the Coast Survey and the line of the Geological Survey from Oregon to southern California, spur lines have been run into northeastern Washington, northern Idaho, and Montana. In addition there are many disconnected lines of precise levels in Arizona, New Mexico and Montana, Utah, etc., which, it is expected, will be connected by extensions to be run within the next few years, thus reducing them accurately to mean sea-level.

In connection with some short lines of precise levels which were run the past season in southern California by the Geological Survey, some unlooked-for discrepancies were found between the elevations determined on the lines of precise levels run several years ago by the Geologic Survey from San Francisco Bay *via* Bakersfield, which is at the head of the San Joaquin Valley, to Los Angeles. The levels of the past season between Bakersfield and Caliente failed to check with a number of the bench-marks of the old precise levels by amounts of from eight inches to one foot. As both lines of level were of a high order, a number of these bench-marks were rechecked, with similar errors. The only possible way in which these peculiar discrepancies can be accounted for is on the assumption that the elevations of the region have been changed by an earthquake which occurred a few years ago.

The Geological Survey also ran a line of precise levels from Yuma, on the lower Colorado River, eastward about 200 miles to Tucson. In New Mexico a line of precise levels was run from Albuquerque northward up the Rio Puerco to the Colorado line, a distance of about 175 miles. Another line of precise levels is being extended southward from Albuquerque down the Rio Grande, a distance of about 300 miles to El Paso. A line of precise levels was also run from Harvey, on the Santa Fé Railway, northward to Owens Lake, and a check line from this was run westward to the summit of Mt. Whitney, in California. This line is now being extended eastward into Death Valley, California, and into the Amargosa desert, and its results are awaited with interest, as they will definitely determine its exact depth below sea-level. So far as indicated, the lowest point of this valley is 450 feet below sea-level, and is probably the lowest piece of dry land on the earth—that is, it is the lowest depression in which no water-body exists.

In Alaska material progress was made in the extension of detailed topographic mapping in connection with the studies of the economic mineral resources. The larger portion of the season's work was devoted to large-scale work, which will permit of more exhaustive investigation of the economic geology. The earlier reconnaissance scale of about four miles to the inch has been practically discontinued for surveys in Alaska, as the more important regions have now been covered by such surveys. A little of this work was done, and less of it will probably be executed in the future as the whole of the general physiography of Alaska is developed.

One topographic party, accompanied by a geologist, made a reconnaissance survey of an extensive area of country along the Beaver Dam River, the resulting maps being on the scale of four miles to one inch, with a contour interval of 200 feet. Another party mapped about 400 square miles at the mouth of Copper River, on the scale of one mile to one inch. Another party mapped quite an area about Solomon, on Seward Peninsula, on the scale of one mile to one inch.

One of the results of the season's work, covering as it does with those of previous years the mapping of a large portion of Alaska, has been a careful revision of the area of Alaska. This is now found to be about 586,000 square miles, or about 4,000 square miles less than has heretofore been accepted.

GEOGRAPHICAL RECORD.

AFRICA.

THE DUKE OF THE ABRUZZI GOING TO RUWENZORI.—The *Bollettino* of the Italian Geographical Society (March, 1906) says that the Duke of the Abruzzi, with an expedition, will leave Italy in April for the Ruwenzori range in Africa, which he hopes to explore. He will be accompanied by Captain Cagni, Dr. Cavalli, naval Lieutenant Winspeare, Vittorio Sella, the renowned Alpinist and photographer, Mr. Botta, and the guides Fenouillet and son and Ollier. The party will proceed to Mombasa, where a caravan of 250 native porters will be formed to accompany the expedition to the Ruwenzori range. The expedition will reach Victoria Nyanza by the Uganda Railroad, and from the lake will travel on foot to the mountains. Here the Italian members of the party will leave the natives, who are not familiar with mountain regions and could scarcely endure the cold of the upper altitudes. After ascending the range and completing their explorations the European members of the expedition will probably go north to Albert Nyanza and descend the Nile to the Mediterranean. It is expected that the work will require about six months.

MR. FRESHFIELD'S ATTEMPT TO ASCEND RUWENZORI.—Mr. Douglas Freshfield, accompanied by Mr. Mumm, went to the Ruwenzori range last fall to attempt the ascent of these snow mountains. November was unfortunately very un-